

Nevada Space Grant Consortium  
Lead Institution: Nevada System of Higher Education  
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Telephone Number: (775) 673-7487  
Consortium URL: <http://www.nvspacegrant.org/>  
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## PROGRAM DESCRIPTION

The National Space Grant College and Fellowship Program consists of 52 state-based, university-led Space Grant Consortia in each of the 50 states plus the District of Columbia and the Commonwealth of Puerto Rico. Annually, each consortium receives funds to develop and implement student fellowships and scholarships programs; interdisciplinary space-related research infrastructure, education, and public service programs; and cooperative initiatives with industry, research laboratories, and state, local, and other governments. Space Grant operates at the intersection of NASA's interest as implemented by alignment with the Mission Directorates and the state's interests. Although it is primarily a higher education program, Space Grant programs encompass the entire length of the education pipeline, including elementary/secondary and informal education. The Nevada Space Grant Consortium is a Capability Enhancement Consortium funded at a level of \$430,000 for fiscal year 2013.

## PROGRAM GOALS

A. *Consortium Goals and SMART Objectives from your 2010 base proposal and budget (or as amended in subsequent submissions):*

The goal of the Nevada NASA Space Grant Consortium is to create and expand opportunities for Nevada students and faculty to be active and valued participants in our Nation's NASA aeronautics and space programs. NVSGC meets this general goal by implementing programs within Nevada that target the following objectives:

*Objective #1: Recruit:* We will a) recruit, train and reward scholars and fellows within all of our academic institutions, b) strive to ensure that they are representative of our state's population, and c) engage faculty and students at all NSHE institutions such that they acknowledge and promote successes of scholars and fellows in ways that enhance employment in STEM careers.

*Objective #2: Support and Guide:* NVSGC will develop new avenues for NASA research projects in Nevada that will ultimately result in new publications or research proposals to NASA.

*Objective #3: Develop Curricula:* Establish new courses and infuse NASA-related content within the NSHE institution's curricula.

*Objective #4: Engage:* Engage students in internships and academy positions at Industrial Affiliates and NASA centers.

*Objective #5: Compete:* Conduct curricular and extracurricular programs where multiple students are involved in hands-on science or engineering activities with an emphasis on the development of teams that compete in science and engineering competitions rooted in NASA-relevant and real world problems.

*Objective #6: Promote STEM materials:* Promote and increase the awareness and availability of NASA content-based STEM materials among teachers so that they can effectively integrate these in their future teaching endeavors.

*Objective #7: Promote STEM literacy:* Promote STEM literacy and increase awareness and perceived importance of NASA's missions through NVSGC activities.

### **PROGRAM/PROJECT BENEFIT TO OUTCOME (1, 2, & 3)**

*Provide concise, meaningful highlights or anecdotes (no more than three) that are directly related to work completed in 2012, highlighting student and/or project accomplishments. Specify alignment to an Outcome.*

**Anecdote for Contributing to Outcome 1:** NVSGC supported the development of Dr. J. Huntington works (who came through the Nevada System of Higher Education- via the Community College of Southern Nevada and the University of Nevada Reno) that has contributed to Dr. Huntington being recognized as being the Regent's Rising Researcher of the year in 2013. Additionally, Dr. Huntington's work has led to him being part of the *President's Climate Data Initiative: Empowering America's Communities to Prepare for the Effects of Climate Change*. Specifically Dr. Huntington work on using satellite imagery to determine water loss from plants (termed *evapotranspiration*) is part of the initiative. This work is enabled via partnerships with Google. Specifically, Justin is working with Google in forming "new partnerships with the Desert Research Institute, the University of Idaho, and the University of Nebraska to (1) provide drought mapping and monitoring for the entire continental United States in near real-time and (2) model water consumption from vegetation across the entire planet." (<http://www.whitehouse.gov/the-press-office/2014/03/19/fact-sheet-president-s-climate-data-initiative-empowering-america-s-comm>). The NVSGC is proud to have supported the initial efforts of Dr. Huntington.

**Anecdote for Contributing to Outcome 2:** A partnership among the colleges of Engineering and Education at UNR previously led to the development of a new course for pre-college teachers that is now leading to an option for a STEM endorsement in teaching degrees. The first cohort of 34 teachers are now implementing these engineering curricula throughout the Washoe County School District and research is continuing to evaluate the impact of the new curricula on student performance. This work also is leading to plans for the implementation of Engineering is Elementary curricula in several schools. Ideas for this approach and curricula were introduced to Nevada through the national Space Grant network. Thus, anecdotal evidence suggests that the local and national network working in conjunction with local seed funding from the NVSGC program is helping train teachers and is leading to new engineering curricula making it into Nevada's schools.

**Anecdote for Contributing to Outcome 3:** A new and exciting program was started this year at UNLV (a Newly designated MSI) that formed a synergistic partnership among the Engineering College of UNLV, the Nevada Society of Professional Engineers,

the American Society of Mechanical Engineers and the Boys and Girls Club in Clark County to introduce kids to Engineering through STEM workshops. Specifically, the STEM workshops provided engineering stations on gliders, flying and zipline engineering and has initially engaged over 100 participants that includes, 1 University professor, 11 professional engineer mentors, 9 undergraduate students, 5 graduate students and over 85 K-7 students (greater than 65% of participants were from underrepresented groups).

## **PROGRAM ACCOMPLISHMENTS:**

*Refer directly to the consortium goals and SMART objectives in your 2010 base proposal when describing your accomplishments.*

**Outcome 1:** *Contribute to the development of the STEM workforce in disciplines needed to achieve NASA's strategic goals:* (Discussion of achievements and progress related to your Fellowship/Scholarship, Higher Education and Research Infrastructure programs). *(Employ and Educate)*

Fellowship/Scholarship:

NVSGC awarded 6 new fellowships and 14 scholarships through open competitions in FY13. The fellows are presently working on their graduate programs in engineering and sciences at UNLV and UNR; whereas, the 14 scholars are working in their engineering and science colleges at UNR, UNLV, Truckee Meadows Community College (TMCC) and Western Nevada College (WNC). Participation was at 33.3% women, and 0% minority participation in fellowships; and 35% women and 29% minorities in undergraduate scholarship/graduate fellowship awards. We are pleased that our overall percentage of minority student participation in this program has increased (to 20% from 14% last year and 11% the year prior) yet is not at our target. We are working to increase these numbers- per the mid-course improvement plans and subsequent reports. The NVSGC did see progress toward the goal of getting applications from other campuses (beyond UNR and UNLV) and competitively awarded scholarships to both TMCC and WNC students.

Research Infrastructure: NVSGC resources for research infrastructure building were competed in FY13 that resulted in new awards and programs. These new programs in combination with ongoing and finishing programs have led to new accomplishments and outcomes targeted at the NVSGC *Objective #2- ( Support and Guide: ---develop new avenues for NASA research projects in Nevada that will ultimately result in new publications or research proposals to NASA).*

Specifically, ongoing programs included the following work:

- Dr. I. McCubbin (DRI): NASA Satellite Validation Distributed Snowfall Measurement Network.

- Dr. P. Forster (UNLV): Surface Characteristics of Mars Dust: Implications for Detection of Recent Liquid Water Events.
- Dr. S. Nowicki (UNLV): Integrating ASTER and MODIS Observations for Climatic Mapping.
- Drs. J. Huntington and C Morton (DRI) Towards Developing Automated Remotely Sensed Energy Balance Fluxes in the Central Valley
- Dr. E. Wang (UNR) Autonomous Parachute Trajectory Tracking via Descent Rate Control

This work continued to engage faculty and advanced students within NSHE and resulted in continued collaborations with NASA centers. Two additional new research projects were started in FY13 (as a result of open state-wide competitions) by Dr. S. Latifi (UNLV), Dr. M. Yuksul (UNR) their CoI's and students. This new work is engineering Stationary Tracking and Concentrated Photovoltaic (CPV) Designs for Space Applications (Dr. S. Latifi's group at UNLV), and the development of Free-Space-Optical Modules for Space Rovers (Dr. M. Yuksul's group at UNR). Overall, participation in the NVSGC research infrastructure projects totaled 10 faculty, 15-20 graduate and undergraduate students and, as an additional by-product, these programs have directly impacted two in service teachers and approximately 20 K-12 students. The work has entailed at least 8 collaborations with NASA centers and personnel. The outcomes/results are meeting the targets for collaborations and new contacts with NASA, presentations and papers (5-7 per year) and grants (2 per year). Participation in these research efforts by underrepresented groups is better than in 2012 at (50% female, and 28% minorities) but still lower than the NVSGC target and remains a targeted area for improvement. The identified area of specific concern and improvement is in the engineering research projects that are dominated by engineering and college applicants that are not diverse.

Higher Education Curricula Development: In contrast to FY12 (whereby multiple curricula were developed on campuses across the state) the NVSGC only supported the direct development of a "Science of Art" class at TMCC during the FY13. This class is going to be a new course that engages students in STEM through the use of and analyses of art. The curricula is being developed by combining an introductory college chemistry course and a beginning ceramics art class together that will students will obtain basic knowledge about science, mathematics and computing skills. For instance, students will be determining percentage of ceramic shrinkage, chemical interaction and reactions (oxidation/reduction) of glazes, and heat related reactions through ceramics firing experiments Curricula development remains a strategic objective of the NVSGC, yet in FY13 the balance slightly shifted in the fundable programs (that were competed across the state) toward the funding of research infrastructure, hands on training and informal education activities. The NVSGC programs remain well balance overall in curricula development due to a large emphasis in curricula development in FY12.

Higher Education: Internships: The NVSGC facilitates and promotes the engagement of students in internships (Objective #4- Internships). During FY13- NVSGC solicited and made matches between two students and researchers at DRI and UNLV whom have strong programs engaged in NASA's science and engineering programs. One first generation Hispanic female undergraduate student is studying Math at a state college and is now participating in Robotics Engineering work at UNLV and will be transferring to UNLV soon to continue her education in engineering; while the other female student is being mentored by the recently awarded Regent's Researcher of the year- Dr. Alison Murray of DRI- where she will be conducting geomicrobiology research related to the NASA's Astrobiology Institute's Icy Worlds program (Dr. Murray is a CoI in the Icy Worlds program).

Higher Education: Hands On Training: NVSGC seeks to conduct curricular and extracurricular programs where multiple higher education students are involved in hands-on science or engineering activities with an emphasis on the development of teams that compete in science and engineering competitions rooted in NASA-relevant and real world problems (Objective #5).

Two of this year's Hands-on-Training (HOT) activities led to teams competing in competitions. Specifically, the NVSGC supported a coupled rocketry and glider engineering systems team to compete in the annual ARLISS program in Nevada's Black Rock Desert as well as a team to compete in NASA's evolving Moonbuggy/Martian Rover competition. The manned rover/Moon Buggy team continued in FY13 with the concurrent engagement of a new cohort of higher Education participants (at UNR) as well as pre-college participants at the Reno AACT high school and TMCC high school. The project continues to center around design and fabrication of a vehicle for NASA's Race engineering design challenge(s). The NevadaSat program has been active for almost a decade and returned to an emphasis in competing in the ARLISS program. The program engaged over 60 students as indirect participants as well as a very engaged and active team of 5 students who designed, built, tested and launched an autonomous glider system that is deployed from launched rockets. Overall, a diverse group of over 100 new participants were engaged in the NVSGC HOT activities in FY13.

**Outcome 2:** *Attract and retain students in STEM disciplines through a progression of educational opportunities for students, teachers, and faculty:* (Discussion of achievements primarily focused on your Higher Education programs not discussed in Outcome 1 and your Precollege programs). (*Educate and Engage*)

The Moonbuggy program/activity also engages a larger number of high school students and in-service teachers (4) such that its results primarily contribute to Outcome 2. However, the activity is truly a flywheel for the range of activities with results that pertain to many of the desired outcomes and NASA Education Priorities (listed in appropriate places below)- including expanding the national network through the engagement of local private industry partnerships.

An additional new program was funded and initiated this year through the Nevada Greenpower program at the Desert Research Institute. This program is leveraging the synergistic partnership among DRI, NV Energy and the CCSD and WCSD that provides training and materials for in-service teachers. This year the NVSGC has funded a planetary Astrobiologist (Dr. H. Sun) whom specializes in the science of cryptoendolithic algae, to develop a habitability science box that contains curricula on how to search for life in inhospitable environments. Dr. Sun is using his expertise and his prior experience in teaching teachers in NASA's Spaceward Bound programs to develop- in accordance with the (TYPO) DRI Greenbox program- materials in alignment with the science Standards for the state (that are being voted on at this time).

**Outcome 3:** *Build strategic partnerships and linkages between STEM formal and informal education providers that promote STEM literacy and awareness of NASA's mission: (Achievements and progress of Informal Education programs) (Engage and Inspire).*

NVSGC has several ongoing and new activities across three institutions in 2013 that are aimed at promoting STEM literacy, developing and providing materials for teachers and actively engaging k-12 students in activities that leverage and promote NASA content. One ballooning program (formed through strategic partnerships among private partners, colleges and the local amateur radio club) continued in 2013 at UNLV and was aimed at designing balloon launches for trans-Atlantic flights. The program continued to support activities of informal educators (4), undergraduate students (5) and a graduate student, a new cohort of high school students (10) and the public at large (~50 participants this year). The program is truly engaging students and is promoting stem literacy and awareness- but also aids in recruitment and retention of students as evidenced by a high school participant entering into UNLV (a newly designated MSI) and is now seeking an astrophysics degree

NVSGC started two new programs (being run out of the UNR College of Education- and the Raggio Center for STEM Education) that are aimed at providing education materials and activities in after school programs and in the Dean's future scholars programs. These programs specifically are developing Earth Sciences and Systems engineering content into summer activities aimed at recruiting under-served students into college and specifically into STEM degrees.

Another new and exciting program was started this year at UNLV that formed a synergistic partnership among the Engineering College of UNLV, the Clark County school district, the Nevada Society of Professional Engineers, the American Society of Mechanical Engineers and the Boys and Girls Club in Clark County to introduce kids to Engineering through STEM workshops. Specifically, the STEM workshops provided engaging engineering stations on gliders, flying and zipline engineering and has initially engaged over 100 participants including: 1 University professor, 11 professional engineer mentors, 9 undergraduate students, 5 graduate students and over 85 students (greater than 65% of participants were from underrepresented groups).

## PROGRAM CONTRIBUTIONS TO NASA EDUCATION PERFORMANCE MEASURES

- **Student Data and Longitudinal Tracking:** Number of program student participants employed by NASA, aerospace contractors, universities, and other educational institutions; Number of undergraduate students who move on to advanced education in NASA-related disciplines; Number of underrepresented and underserved students participating.

The total significant student awards (as defined per NASA guidelines) in our Higher Education programs for FY13 was 58 of which 20 were Scholars and Fellows; 2 Interns; 36 Higher Education. A total of 17 awards went to women for a low 29% women participation rate. Nine significant awards were made to underrepresented minority participants (16%).

The number of undergraduate students who reported having moved on from their position while engaged in the NVSGC-sponsored activity to a next step in advanced education (in a NASA-related discipline) was 5 or ~ (9%); Of the students who have reported their next steps one moved on to a profession outside a NASA-related discipline. The remainders have advanced in their areas of higher education STEM study.

- **Minority-Serving Institution Collaborations:** Summarize interactions. Reference the names of projects with MSI collaborations.  
Two NSHE institutions became newly designated as MSIs during FY13- namely UNLV and Southern Nevada College (SNC). Both campuses have been long time members of the NVSGC and have had active programs. Campus associate directors have been designated on both campuses for over a decade and help the program in its overall programmatic goals. This year, the NVSGC funded a diverse range of programs, scholarships, interns and fellows that aided in meeting the NVSGC objectives (as described in detail above.) Specifically- four programs were supported to attain Higher Education (HE) outcomes [e.g. aimed at research infrastructure (RI), or Hands on training programs (HOT)] as well as two that provided funding to UNLV to attain Informal Education (IE) outcomes.

Latifi- Stationary Tracking and Concentrated Photovoltaic (CPV) Design for Space Applications (HE-RI)

Otoole- Hands-on Multidisciplinary Engineering Course with a STEM Educator Workshop Component (HE-HOT)

Forester- Surface Characteristics of Mars Dust: Implications for Detection of Recent Liquid Water Events (HE-RI)

Nowicki- Integrating ASTER and MODIS Observations for Climatic Mapping (HE-RI)

Rhee- High Altitude Balloon Research (IE)

James- Improving Classroom support for K-6 STEM education through hands-on activities introducing the engineering design process (IE)

Four fellowships for graduate students (2 women, 2 male) and six scholarships for undergraduate students were awarded on the UNLV campus through the state-wide annual open competition for FY13 fellowships and scholarship funds. This competitive distribution constituted 2/3rds of the fellowships and 43% of the scholarships being awarded to students attending an MSI.

NVSGC also funded a first generation Hispanic female- Aimee Gonzalez- in a strategic internship that allowed her to more actively pursue her Math degree at CSN and transfer to UNLV (a MSI) to pursue an aeronautics field of study. The internship is allowing her to transition from part/full time work outside of the STEM fields (to support family obligations) to working on robotics projects that are allowing her to gain hands on experiences in the STEM field and contributes to the retention and training of the STEM workforce.

- **NASA Education Priorities:** *Accomplishments related to the “Current Areas of Emphasis” stated in the 2010 Space Grant solicitation. Report on areas that apply to work proposed in your proposal and budget.*

- Authentic, hands-on student experiences in science and engineering disciplines – the incorporation of active participation by students in hands-on learning or practice with experiences rooted in NASA-related, STEM-focused questions and issues; the incorporation of real-life problem-solving and needs as the context for activities.

The NVSGC strategically emphasizes Hands-on-training (HOT) projects rooted in NASA questions. HOT training programs were conducted at UNR, UNLV, DRI as well as through the Clark County and Washoe County school districts as described above (under objective 4 and 5 accomplishments). Programs led to individual internships as well as the development of teams engaged in the Advance Rocketry competitions as well as the Moonbuggy/Martian Rover engineering competitions. The areas of training were primarily in engineering, Earth System Sciences and the life sciences pertaining to the search for life beyond earth.

- Diversity of institutions, faculty, and student participants (gender, underrepresented, underserved).

The NVSGC actively engaged 72 graduate and undergraduate direct student participants with 22 females (31%) and approximately 13% participation of underrepresented students based on available data. We had active engagement from 23 male faculty participants and 8 female faculty participants of which 2 were identified as underrepresented.

As indirect participants, we engaged 112 undergraduates; 12 graduate/Post-Doctoral. Of these, only 76 were able to report demographics noting that we engaged 16

Females (~22%) and 10 underrepresented minorities (~14%). Through 4 different projects, we had a total of 144 K-12 student participants of which 85 were third – seventh grade students (44% female) (65% underrepresented minorities). In addition, thirty-three k-12 students were identified as 38% female with 2 participants identified as underrepresented. We engaged 2 K-12 teachers; 11 Mentor/Engineers; and ~50 general public participants.

We engaged at least five out of the eight institutions of Higher Education within NSHE through its funded programs across its diverse programs that covered a diverse range of disciplines (Astrophysics, Geology, Engineering, Astrobiology, Earth System Sciences, general STEM Education). Diversity in the participation in the varied programs was greater than in past years for total participants due to a large engagement of minority k-12 students and informal education participants.

- Engage middle school teachers in hands-on curriculum enhancement capabilities through exposure to NASA scientific and technical expertise. Capabilities for teachers to provide authentic, hands-on middle school student experiences in science and engineering disciplines (see above).

The NVSGC's Dr. H. Sun is working with the DRI-Green Power program (described briefly above) in developing science boxes that provide curricula, materials and content that targets understanding of habitability and the search for life beyond earth. These curricula span k-12 curricula- yet are most applicable to middle-school curricula and science standards. Through this program the newly developed boxes are being delivered to four Title one middle schools for initial use and then will be made available to all Green Power designated schools (presently at 150 throughout Nevada).

- Summer opportunities for secondary students on college campuses with the objective of increased enrollment in STEM disciplines or interest in STEM careers.

The Moonbuggy competition activity is one example of engaging secondary students in yearlong activities (including summer) that has led to the majority of the past years participants enrolling in UNR's mechanical engineering or TMCC's engineering colleges. The Ballooning program at UNLV, the NevadaSat program at UNR and the new program within the UNR Deans future scholars program are other examples whereby secondary education students are actively engaged in summer programs/activities that increase not only depth of knowledge but interest in and knowledge about STEM career paths. Strategic partnerships between school districts, NSHE and private partners has aided in increasing the interest in the STEM careers in all of these programs by showing students tangible career opportunities with local colleges and industry.

- Community Colleges – develop new relationships as well as sustain and strengthen existing institutional relationships with community colleges.

NVSGC remains committed to the partnership with TMCC and its state's four year colleges. The activities at TMCC includes recruiting and funding scholars, conducting HOT competitions (the Lighter than air vehicle competition was initiated with Space Grant funding and has been a tradition for the past 5 years), and providing resources for faculty to develop STEM courses (e.g. the Art of Sciences).

- Aeronautics research – research in traditional aeronautics disciplines; research in areas that are appropriate to NASA's unique capabilities; directly address the fundamental research needs of the Next Generation Air Transportation System (NextGen).

NVSGC fosters the collaborations for unmanned aerial vehicle technologies and testing. This general aim was realized this past year with Nevada being designated as one of six of the FAA's official test beds to determine UAV practices. Many if not all of the NVSGC NSHE institution are engaged in leveraging research as well as training programs in UAV enabled science as well as design and operations of UAV technologies. The NVSGC has been engaged along with private partners in developing research programs with NASA Centers (e.g. NASA Ames' fire science UAV program). Such activities are presently leading to new Space Act agreements with NSHE institutions to allow better operational collaborations between NASA's – centers and Nevada Researchers. Many of these potential research development areas are being coordinated with the Nevada NASA EPSCoR program such that there is a coordinated allotment of resources for research through the EPSCoR program and workforce training and initial collaboration building efforts are being facilitated through Space Grant resources/efforts.

- Environmental Science and Global Climate Change – research and activities to better understand Earth's environments.

The NVSGC fosters climate change education and research and is an explicit emphasis in its current strategic plan and operations. The expertise within NSHE regarding climate at the Polar Regions as well as within the Great Basins of the world as well as the expertise in hydrologic processes in arid environments makes the NVSGC an active participant in climate change studies. Specific contributions funded by NVSGC resources in FY13 include follow on activities to the initial development of the LandSat capabilities and personnel commitment to the Land Sat mission at DRI. As mentioned above, this work contributed to the Jr Faculty (Dr. J. Huntington) receiving the Regent's Rising Researcher of the year award in 2013 and Dr. Huntington being part of the White-house supported efforts of Google announce *“new partnerships with the Desert Research Institute, the University of Idaho, and the University of Nebraska to (1) provide drought mapping and monitoring for the entire continental United States in near real-time and (2) model water consumption from vegetation across the entire planet.”*

(<http://www.whitehouse.gov/the-press-office/2014/03/19/fact-sheet-president-s-climate-data-initiative-empowering-america-s-comm>)

- Enhance the capacity of institutions to support innovative research infrastructure activities to enable early career faculty to focus their research toward NASA priorities.

The NVSG recognizes the value of early career development and as such has funded works by faculty at TMCC (Ann Marie Vollstedt), UNR (Emil Geiger) and DRI (Justin Huntington) of which have valued engagement in NASA programs and contributions to desired NASA Research and Education outcomes (as described above).

## IMPROVEMENTS MADE IN THE PAST YEAR

*Succinctly describe improvements and/or adjustments made last year that demonstrate significant change(s) within the consortium. The improvements and/or adjustments that brought about change may have been in management, resource allocation, project design, project evaluation, etc.*

The NVSGC saw enhanced active programs and participation over the past two years- in comparison to FY11- which was year of particular concern in outcomes and reporting. Namely, the NVSGC had 14 active programs that engaged faculty, college students (58), teachers, k-12 students and the public (with well over 100 indirect participants) in science engineering and STEM education activities across the state. These programs are yielding the outcomes that have enhanced the participation numbers and they have had higher participation among minority participants, compared to the particularly low year of 2011 (although still not at the targets sought). The accomplishments that have been realized thus far (not only in programs but in reporting) are due in part to a clearer delineation of roles among the Director, Associate Director and the NSHE Sponsored projects office- program administrators for pre and post award activities (more specific details given below). In spite of some of the realized accomplishments, challenges remain in areas of coordination, promotion, minority participation (especially this area) and the levels-of-effort for tracking and reporting of program outcomes. Many of the additional improvements sought can be addressed through the hiring and training of a program coordinator for the Space Grant program. In addition, structural issues in regards to placement of duties and responsibilities among Director, Associate Director and campus contacts still are to be addressed and will be addressed in the next 6 months through the process of open recruiting and training of a new Director.

## PROGRAM PARTNERS AND ROLE OF PARTNERS IN PROJECT EXECUTION

*List the institutions that comprise the consortium; include the name, type of institution, key characteristics, and role.*

NVSGC has eight member higher education learning institutions across the state, including: the University of Nevada, Las Vegas (UNLV); the University of Nevada, Reno

(UNR); the Desert Research Institute (DRI); the College of Southern Nevada (CSN); Great Basin College (GBC); Truckee Meadows Community College (TMCC); Western Nevada College (WNC), and Nevada State College (NSC). Campus Associate Directors, in conjunction with two NSHE research administrators comprise an internal advisory committee that aids in setting yearly operational goals and aims. The Director of the Nevada NASA Space Grant/EPSCoR Program reports to the Vice Chancellor and the Nevada System of Higher Education's (NSHE) Research Affairs Council. Thus, the consortium operations are run as a system-wide program with those with higher education interests represented.

The Consortium also includes industry and education partners. Digital Solid State Propulsion (Reno, NV), Equipment Links, Inc. (Las Vegas, NV). Sierra Particle Technologies (Reno, NV) and Summit Products (Minden, NV). The Challenger Learning Center of Northern Nevada, the Fleischmann Planetarium & Science Center, the Jack C. Davis Observatory at WNC and K-12 Washoe County School District's Science Program Coordinator form the present consortium education partners. The industrial and educational partners' roles in the consortium lie mainly in implementing internship opportunities, as well as informal education and precollege programs. They also are invited and participate in planning and operations and aid in communicating and facilitating NASA program opportunities.

**The National Space Grant Office requires two annual reports, the Annual Performance Data Report (APD) and the Office of Education Performance Measurement System (OEPM) report. The former is primarily narrative and the latter data intensive. Because the reporting timeline cycles are different, data in the two reports may not necessarily agree at the time of report submission. OEPM data are used for official reporting.**